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Application of Self-organizing maps in high energy physics

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Self-Organizing-Maps (SOM) are widely used neural nets for unsupervised learning and dimensional reduction. They have not yet been applied in high energy physics. We discuss two applications of SOM in particle physics. First, the separation of physics processes in regions of the dimensionally reduced representation. Second, we obtain Monta Carlo scale factors by fitting templates to the dimensionally reduced representation. We use the ATLAS Open Data dataset as an example.

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